Examining potentials for future of mobile Internet

Laura Männistö

9 February 2000
Subscriber Growth

Source: Ericsson.
• Drivers to mobile Internet
• Challenges to mobile Internet
• Some potential application areas
• Examples
Internet Waves

GOVERNMENT & RESEARCH
EMAIL
WORLDWIDE WEB
WIRELESS / MOBILE INTERNET
EMBEDDED INTERNET

Today

Source: Motorola.
Drivers for mobile Internet

- Meteoric growth of the Internet and mobile communications
- Increasing mobility
- New applications, services and business models
- Enabling technologies

Annual growth 1990-1999

<table>
<thead>
<tr>
<th>Component</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone lines</td>
<td>6%</td>
</tr>
<tr>
<td>Cellular subscribers</td>
<td>52%</td>
</tr>
<tr>
<td>Internet hosts</td>
<td>87%</td>
</tr>
</tbody>
</table>
Mobile Evolution

**Mobile Communication Systems Evolution**

- **1980**: 1st Generation
  - Analog Cellular Telephone
  - PSTN (Stationary Pedestrian Speed)

- **1990**: 2nd Generation
  - Digital Cellular Telephone (PDC, GSM, IS-95)
  - Cordless Telephone

- **2000**: 3rd Generation
  - W-CDMA
    - IMT-2000 (Ⅱ)
      - Global Standardization
      - Multi-media Use (~2Mbps)
      - High Speed Mobility
  - Wireless ATM
    - Last 100m for ATM
    - Multi-media Use (~10Mbps)
  - PHS, DECT

- **2010**
  - Beyond 3G

**Transmission Bit Rate (bps)**

**Source**: ITU World Telecommunication Development Report 1999, adapted from Matsushita Communication Industrial Co, Ltd.
3G (IMT-2000) Network Architecture

Digital Services Vision

Source: Motorola.
Lots of Questions: Wireless Internet?

- Where is the demand?
- How to segment?
- How to classify?
- What price?
- What interface?
- Which standards?
- What kind of value chain?
- Which business models?
Demand: Characteristics of applications

- Personal
- Location-based
- Simple
- Action-oriented
Segmentation: Subscriber - Application

- Intranet Hosted Applications
- Wireless Business Subscribers
- Wireless Consumer Subscribers
- Internet Hosted Applications
Interfaces
Which standards? - An alphabet soup

- SMS
- GSM
- WAP
- GPRS
- W-CDMA
- W-LAN
- i-mode
- XML
- Bluetooth
- EPOC
- J ini
- VXXML
Ready to WAP?

- 37 operators announced WAP services in January 2000
- WAP will not be significant before GPRS packet switching and always on features
- WAP likely to be an interim technology

“Where Are the Phones”

“Wait And Pay”
Mobile applications

- Person-to-person (communications) services
- Mobile office (business) services
- Mobile E-commerce services
- Travel/location based services
- Entertainment/leisure services
- Telemetry (machine-to-machine) services
Person-to-person (communications) services

- Messaging (voicemail, SMS, e-mail, unified messaging)
- Computer Telephony Integration
Mobile office (business) services

- Internet/intranet access - browsing, file transfer
- Corporate groupware / PIM synchronization
- Real-time support (expert-on-line)
- Remote diagnostics / maintenance
- Collaborative working (tele-presence)
Mobile E-commerce services

Source: Adapted from Ericsson.
Travel/ location based services

- Timetable, schedule info
- Traffic information
- Yellow pages, intelligent directories
- Navigation services
- Tourist info / virtual tour guide

CitiKey™ World's First Mobile City Guide
CitiKey opens up the city for you. CitiKey services include personalized information on events, restaurants, culture, transportation, sports, shopping and more; all linked to digital maps and navigation, favorite lists and ratings, reservation and payment and accessible when you need it most.
Entertainment/leisure services

- News, sports, weather updates
- E-magazines
- Audio-on-demand
- Video-clips-on-demand
- Interactive games / gambling
- Health advice and information
- Education, training
Telemetry (machine-to-machine) services

- Remote monitoring & control
- Data acquisition & metering
- Remote or temporary E-POS
- Surveillance
- Traffic telematics (route guidance, tracking etc.)
Additional services

• Security for mobile commerce

• Billing solutions for mobile commerce
Application Revolution

Traditional Application Portfolio

Access
Access
And
More
Access

Next-Generation Application Portfolio

Transaction
Click-N-Call
Interactive Chat
Surf-With-Me
Video Conferencing
Micropayments

Productivity
Virtual Second Line
Unified Messaging
Collaboration
Personal IVR
CD Quality Sound
Video Answering Machine
Virtual Assistants
Online Directory
Worldwide Forwarding

Cost Savings
Toll Bypass
QoS Differentiation
Remote Access
CoS Differentiation
Internet Voice Mail

Source: USbancorp Piper Jaffray.
http://www.iobox.fi/

iobox juuri Sinulle

Tarjoamme sinulle palveluja ja sisältöä Webiin, WAP:in ja SMS:ään ja sitäkin pidemmälle.

Liikkuva viestintä

Liikkuva manageri
Jotta saisit enemmän irti elämästäsi, iobox tarjoaa sinulle ioukon integroituja

Liikkuva uutiskanava
Ibox tuo piakkoon uutiset kännykkääksesi. Urheilua, business-uutisia.

Mobile Fun
Ota huomori mukaan matkalle! Personoiden kännykkääksesi lamaalla kymmeniä hauskoja ja ainutlaatuisia soittoaani ja kuvakeita. Tai ilmaise itseäsi säveltämällä omat soittoäänesi ja piirtämällä omat kuvakekeiksi. Ja mikset lähettää niitä myös ystävilleesi?

(SFinland)
http://www.jinny.ie

Jinny Software Ltd. is a market leader in the provision of mobile telecommunications software solutions. We provide mobile commerce and messaging solutions for GSM operators, banks, mobile & Internet service providers and large corporations. The company offers a full range of WAP compatible servers: Value Added Services, WAP Gateways, Wireless Banking Platforms and Unified Messaging Servers. By offering state-of-the-art technology, Jinny Software Ltd. helps to make our clients part of the global mobile data phenomenon.

Our WAP compatible VAS Server range allows a wireless Network operator to provide Internet based services to the end-user over a mobile network direct to the user’s mobile phone. The growing need for GSM and other mobile operators to differentiate their services from others has focused Jinny Software’s attention in this area, which is a significant market opportunity. By offering value added services such as Jinny Software VAS platforms, it has been proven that churn can be dramatically reduced in the GSM market.

The Jinny Software WAP Gateway goes one step further. It allows true

(Ireland)
http://www.oz.com/

(Burlington, MA; Iceland, Sweden)
Tomorrow's Solutions Today

Small Planet Ltd. is a Helsinki, Finland, based company specialising in information, entertainment and business applications for the wireless media. Our core competence lies in database solutions, WML and software applications controlling information distribution to wireless products.

Tel +358 9 4313 8957
Fax +358 9 4313 8991
E-mail info@smallplanet.fi

Join Our Dynamic Team!

Our expanding business needs more talented people. Do you have special skills in software development, mobile media solutions, business management or content production? Are you a real team player willing to share your knowledge? Send in your CV to jobs@smallplanet.fi.
Wireless technology is evolving. And so are the people who use it. They require information wherever and whenever they roam and on the wireless devices of their choosing. Their quest: to increase productivity at work...and enhance their lifestyle at play.

At Ztango.com, we're helping to define what Internet mobility is all about by enabling wireless operators, content providers and corporations to deliver information in new ways. Our software solutions turn mobile networks into information gateways, liberate content from the confines of desktop PCs and into the hands of mobile users, and give enterprises powerful tools for maximizing their mobile workforces.

Our solutions are technology agnostic; we're as comfortable operating with GSM networks as we are with TDMA, CDMA and others, and across all the major brands.
http://www.wannago.com/

Wannago - makes it easier to have fun!

Do you want to have fun? Let us help you!

(Sweden)
http://www.acrosswireless.com

(GSM World Congress)

The World's Mobile Meeting Place
2nd - 4th February 2000, Cannes, France
Stop by stand E10 for real wireless e-commerce happening now, plus free hit CDs.

(Job openings)

Across Wireless is growing fast, so if you're looking for the freedom to enjoy a rewarding experience with challenging assignments, we look forward to hearing from you!

(Press center)

Across Wireless expands into the UK. "This is an important wireless Internet and mobile commerce market..."

(Products)

WADP means mobile subscribers get quality wireless Internet NOW.

(Client zone login)

(Sweden, Hong Kong, Richardson USA)
faster mobile internet communication

in brief...

icomera is developing the MATS solution giving unprecedented transmission speeds for mobile data users. MATS requires no new infrastructure and uses standard equipment.

MATS will provide average speeds of 100kbps wherever GPRS has coverage, thus making the mobile office truly mobile.